

WHAT IS CLAIMED IS:

1. A method for providing a graphical user interface in a High Performance Computing (HPC) environment comprises:

5 collecting information on a plurality of HPC nodes, each node comprising an integrated fabric;

generating a plurality of graphical elements based, at least in part, on the collected information; and

10 presenting at least a portion of the graphical elements to a user.

2. The method of Claim 1, the collected information comprising physical data on each HPC node.

15 3. The method of Claim 2, the physical data comprising one or more of the following:

processor utilization;

memory utilization;

physical location;

20 IP address; and

bandwidth.

4. The method of Claim 1, one of the graphical elements comprising a view of a topology of the plurality 25 of HPC nodes, the topology enabled by the integrated fabric of each node.

5. The method of Claim 4, further comprising:
  - receiving a job submission from the user, the job submission comprising at least one parameter;
  - communicating the job submission to a job scheduler for dynamic allocation of a second subset of the plurality of HPC nodes; and
  - updating the view of the topology based on the dynamic allocation of the second subset.
  
- 10 6. The method of Claim 5, further comprising:
  - communicating an interactive command to the job scheduler for an increase in size of the second subset; and
  - updating the view of the topology based on dynamic allocation of the increased size.
  
7. The method of Claim 4, further comprising:
  - receiving a notification of a failure of one of the plurality of HPC nodes; and
  - 20 updating the view of the topology based on the notification.

8. A Graphical User Interface (GUI) in a High Performance Computing (HPC) environment operable to:

collect information on a plurality of HPC nodes, each node comprising an integrated fabric;

5 generate a plurality of graphical elements based, at least in part, on the collected information; and

present at least a portion of the graphical elements to a user.

10 9. The GUI of Claim 8, the collected information comprising physical data on each HPC node.

10. The GUI of Claim 9, the physical data comprising one or more of the following:

15 processor utilization;  
memory utilization;  
physical location;  
IP address; and  
bandwidth.

20 11. The GUI of Claim 8, one of the graphical elements comprising a view of a topology of the plurality of HPC nodes, the topology enabled by the integrated fabric of each node.

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12. The GUI of Claim 11, further operable to:
  - receive a job submission from the user, the job submission comprising at least one parameter;
  - communicate the job submission to a job scheduler for dynamic allocation of a second subset of the plurality of HPC nodes, the second subset comprising a substantially similar set of nodes as the first subset; and
  - update the view of the topology based on the dynamic allocation of the second subset.
  
13. The GUI of Claim 12, further operable to:
  - communicate an interactive command to the job scheduler for an increase in size of the second subset; and
  - update the view of the topology based on dynamic allocation of the increased size.
  
14. The GUI of Claim 11, further operable to:
  - receive a notification of a failure of one of the plurality of HPC nodes; and
  - update the view of the topology based on the notification.

15. A system for providing a graphical user interface in a High Performance Computing (HPC) environment comprises:

5 a plurality of HPC nodes, each node comprising an integrated fabric; and

a client operable to:

collect information on at least a subset of the plurality of HPC nodes;

10 generate a plurality of graphical elements based, at least in part, on the collected information; and

present at least a portion of the graphical elements to a user.

15 16. The system of Claim 15, the collected information comprising physical data on each HPC node.

17. The system of Claim 16, the physical data comprising one or more of the following:

20 processor utilization;  
memory utilization;  
physical location;  
IP address; and  
bandwidth.

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18. The system of Claim 15, one of the graphical elements comprising a view of a topology of the plurality of HPC nodes, the topology enabled by the integrated fabric of each node.

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19. The system of Claim 18, the client further operable to:

receive a job submission from the user, the job submission comprising at least one parameter;

5 communicate the job submission to a job scheduler for dynamic allocation of a second subset of the plurality of HPC nodes; and

update the view of the topology based on the dynamic allocation of the second subset.

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20. The system of Claim 19, the client further operable to:

communicate an interactive command to the job scheduler for an increase in size of the second subset;  
15 and

update the view of the topology based on dynamic allocation of the increased size.

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21. The system of Claim 18, the client further operable to:

receive a notification of a failure of one of the plurality of HPC nodes; and

update the view of the topology based on the notification

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